

GENETIC VARIATION IN *AMYLOSTEREUM* IN NORTHERN AND CENTRAL EUROPE

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The symbiosis between members of the fungal genus *Amylostereum* and woodwasps belonging to the genera *Sirex* or *Urocerus* is fascinating from several perspectives. It ranges from being an obligate symbiosis in some of the distribution area to having a facultative nature under other circumstances. Within the native distribution in Northern Europe, *A. chailletii* is only facultatively connected to its vector *U. gigas* while the insect is not reproducing without the fungus. By contrast, *A. areolatum* is ecologically only found in connection with insect activity and is only very rarely observed to produce fruiting bodies. These relations are mirrored by the genetic structures of the two fungal species in Northern Europe; both show signs of clonal dispersal on the scale of 10s of meters but the populations are much more variable in *A. chailletii*. On a larger scale, *A. areolatum* still contains a large proportion of clonal replication while *A. chailletii* is more variable resembling other non-vector spread basidiomycetes. Interestingly, in the eastern alpine areas *A. areolatum* is known to produce fruiting bodies and correspondingly, the populations are genetically composed of a multitude of genotypes. In the epidemic areas in the southern hemisphere, lack of fruiting has a matching lack of genetic variation. An interesting question, that might be the key to our understanding of the genetic variation and corresponding aggressiveness of the symbiotic systems, is what factors, internal or external, are regulating the sexual fruiting of these fungal species.



Dr Jan Stenlid is a Professor of Forest Pathology at the Swedish University of Agricultural Sciences in Uppsala since 1995. He graduated from Uppsala University in 1980 and obtained his PhD 1986 from the Faculty of Forestry at Swedish University of Agricultural Sciences. He has conducted research on the geographic distribution and population genetics of *Amylostereum* species. Current research grants include a Joint Genome Institute project on "Whole Genome Sequencing of the conifer root rot fungus *Heterobasidion annosum*", "FORTHREATS" an EU project on invasive pathogens in European Forests, and Swedish research grants on pathogenicity factors in *H. annosum* and characterisation of the current ash dieback.

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